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Operational Pauses:
Minimizing the Effects of
Culmination in Joint Operations

A Monograph
by
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Field Artillery

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ABSTRACT

OPERATIONAL PAUSES: MINIMIZING THE EFFECTS OF
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The purpose of this monograph is to determine how operational pauses can be best sequenced in order to minimize the effects of culmination on the AirLand Battle battlefield. This study focuses at the operational level and joint operations.

My methodology began by examining the theoretical and doctrinal foundation for pauses in major operations. This section concluded with a derived definition of operational pauses. I then examined three case studies, two from World War II and Operation DESERT SHIELD/STORM, to see how operational pauses were used to minimize the effects of culmination. I then assessed the effectiveness of these pauses using as criteria three operational operating systems--maneuver and mobility, firepower, and protection. Finally, I make some conclusions on how operational pauses can be best sequenced during joint operations to minimize the effects of culmination.

This monograph concludes that while the term "operational pause" has become a part of our operational vernacular, it remains undefined in our doctrine. I provide a proposed definition of the term and show how it can serve as a tool for the operational commander in designing the conduct of his campaign plans. When properly employed, an operational pause allows an operational commander to retain the initiative on the battlefield by shifting his main effort from one service component to another. This monograph concludes with some proposed subjects for further study on the concept of operational pauses.

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Part I: INTRODUCTION

Although the concept of operational art has existed in the United States Army's doctrine for several years, we are still trying to come to grips with its many aspects. One such aspect of operational warfare is the cyclic nature of violent combat action followed by periods of relative inactivity. In his theory of war, Clausewitz noted that "...action in war is not continuous but spasmodic."¹ The causes for this spasmodic nature of warfare are many and some are more clearly understood than others.

One of the major causes for warfare being cyclic rather than continuous is the concept of culmination. The causes and effects of culmination in respect to operational art are well documented in our contemporary military literature.² However, a less well understood concept, and one that is not well documented in our doctrine, is the conduct of operational pauses. In my judgement, the concept of operational pauses is inextricably linked to the concept of culmination. However, I do not believe they are identical concepts. Current military writings are almost completely void of direct reference to operational pauses or often tend to treat them interchangeably with culmination. As a

result, there exists significant confusion and controversy on the overall concept of operational pauses.

Basically, operational art is the conduct of campaigns and major operations to achieve strategic military objectives. Since these campaigns and major operations will normally be joint operations, I will focus on operational pauses from a joint perspective.³ With the assistance of military theory, doctrine, and some historical case studies, I intend to examine this concept of operational pauses and their interrelationship to culmination. The ultimate goal of this paper is to determine how operational pauses can be sequenced best during joint operations in order to minimize the effects of culmination.

This monograph is significant because it attempts to shed light on one of the most misunderstood and lightly documented aspects of operational art. Additionally, the concept of operational pauses is crucial to the design and execution of campaigns and joint operations despite its current ambiguity. Finally, additional significance is derived from our recent combat operations in Southwest Asia.

SCOPE

In an effort to focus my examination of the concept of operational pauses, I will concentrate on the design

and execution of major joint operations and campaigns. Therefore, this monograph is exclusively oriented at the operational level of warfare. Although US military doctrine encompasses the entire operational continuum, I will further narrow the focus of this monograph by only looking at the mid- to high-intensity portion of that continuum. While campaigns and major operations may be either defensive or offensive in nature, I will concentrate on offensive ones. This is significant because the concept of culmination may assume different characteristics in defensive operations as opposed to offensive ones. The treatment of the relationship between culmination and operational pauses in defensive operations should be the subject of a further but separate study.

ASSUMPTIONS

In developing this monograph I have assumed that operational pauses, as I will further define later, are not the result of offensive culmination. Rather, they are a deliberate attempt by the force commander to avoid the effects of culmination. My basis for this assumption will lay in a derived definition of operational pauses from a solid theoretical and doctrinal foundation.

METHODOLOGY

First, I will examine the theoretical and doctrinal foundation for the concept of operational pauses. This foundation will conclude with a definition of operational pauses that will be used throughout the monograph. Next, I will examine some historical case studies to see how these pauses were sequenced by service component in the execution of past major operations and campaigns. I will follow this with my conclusions on sequencing operational pauses in joint warfare. I will conclude this monograph by proposing some areas for further study to develop more completely the concept of operational pauses.

When assessing the effectiveness of operational pauses in joint warfare, I will use as criteria three of the Operational Operating Systems: Maneuver and Mobility, Firepower, and Protection. The operational pause of each case study will be evaluated by its contribution to the operational operating systems and success of the operation or campaign. In order to understand this elusive concept of operational pauses, let us first turn to military theory and US doctrine to define this term and seek its origins.

Part II: THEORY AND DOCTRINE

Warfare in the last two centuries has undergone significant changes. Perhaps one of the most important

changes has been the demise of the single decisive battle in determining the outcome of a war.⁴ No longer can a country send its army into the field of battle to fight a single decisive battle and achieve the strategic aims of the war as the Romans or Frederick the Great once did. Many characteristics of modern warfare have caused this change, not the least of which include the increased size and strength of armies, improved technological capabilities, and the necessity for greater dispersion of forces due to the increased lethality of modern arms. As a result of the combination of these and other factors, joint operations coupled with sequential and simultaneous major operations throughout the depth of the battlefield have replaced the single decisive battle.⁵

In modern terms, the campaign is defined as, "[a] series of related military operations aimed to accomplish a strategic or operational objective within a given time and space."⁶ From this definition two important implications emerge about the nature of modern warfare. First, campaigns are a manifestation of operational art since they serve to link operations on the battlefield to some larger strategic or operational objective. Second, campaigns are a "series of related operations" rather than being a single battle that achieve strategic

objectives. It is this concept of a series of actions which brings us to examine how these actions should unfold during the conduct of a campaign.

If warfare operated according to some perfect theory, rather than under real world conditions, "military action ought to run its course steadily like a wound up clock."⁷ But this is not the case in the real world. Instead, modern warfare is characterized by spasmodic rather than continuous, smooth flowing action. Only a small part of conflict is occupied by action while the balance is spent in inactivity.⁸ Therefore, the modern concept of campaigning consists of the sequencing of simultaneous and sequential actions to achieve a strategic or operational objective.

Clausewitz tells us that there are three basic reasons for this deviation of actual warfare from a perfect theoretical concept. In summary, these reasons are the fear and indecision native to the human mind, the imperfection of human perception and judgement, and the concept that the defense is the stronger form of warfare.⁹ For purposes of our discussion, the concept of the superiority of the defense versus the offense brings us to one of the root causes for warfare being spasmodic rather than continuous. That cause is the

concept of the culminating point. This concept requires a brief explanation in order to continue our trek to understanding and defining operational pauses.

In theory, the culminating point of the offense is the point in time when the strength of the attacker no longer significantly exceeds that of the defender and beyond which continued offensive operations run the risk of overextension, counterattack and defeat.¹⁰ As Clausewitz states:

Most of them [strategic or operational attacks] only lead up to a point where the remaining strength is just enough to maintain a defense and wait for peace. Beyond that point the scale turns and the reaction follows with a force that is usually much stronger than that of the original attack [the defender is now stronger than the original attacker].¹¹

There are two critical aspects of the concept of culmination. First, when culmination occurs, it is the combat power or combat potential of the force which culminates. The second aspect resides in the relational shift in the relative strength of the attacker to the defender. As culmination approaches, the attacker is losing strength while the defender is gaining it, at least in relation to one another. Finally, a point is reached where the attacker is weaker than the defender and the potential for initiating action and probable success lies with the original defender. Obviously, preclusion of such a situation is in the interest of the

attacker. If possible, he will want to maintain his strength superior to the defender and retain the initiative throughout the operation or campaign.

Current military doctrine recognizes the importance of avoiding the effects of culmination. FM 100-5 specifies that, "In the attack, operational commanders design their campaigns to defeat the enemy prior to reaching their culminating point."¹² While the manual goes on to specify some of the reasons for culmination, such as overextension, lengthening lines of support, and cumulative effects of battle losses, it fails to prescribe any mechanisms or techniques for preventing the phenomenon of culmination.¹³

In its discussion on sequencing operations setting the conditions for operational success, FM 100-6 states, "For the attacker, attrition of combat power and extension of lines of communications may eventually reduce offensive momentum so that a pause is necessary to consolidate and reconstitute."¹⁴ This reference to a pause provides us with a key to avoiding the consequences of culmination. If the operational commander can structure or sequence his campaign or major operations so that he can pause prior to reaching culmination, he might simultaneously regenerate his combat power and retain the initiative in order to resume offensive operations at a later time. Key here is retention of the initiative, for

if he experiences culmination, he has by definition passed the initiative over to his opponent.

Since campaigns are by nature joint operations, let us quickly review US Armed Forces' doctrinal manuals to see what they reveal on the concepts of culmination and pausing. Then I will proceed by deriving a definition of operational pauses.

The US Army's doctrinal concepts, as espoused in FM 100-5, discuss culmination in some detail. As indicated previously, culmination is defined in Clausewitzian terms and some of its causes are identified. However, the manual fails to provide the operational commander with any techniques for avoiding culmination. In fact, the manual is at most vague and at times almost contradictory in specifying how the operational commander should structure his campaign design. For example, the AirLand Battle imperative of "Press the Fight" specifies:

Campaigns or battles are won by the force that is most successful in pressing its main effort to a conclusion... accept[s] risks and tenaciously press[es] soldiers and systems to the limits of endurance for as long as possible.¹⁵

Such advice does not appear consonant with the concept of pausing during the conduct of any operation. Rather, it implies a headlong assault that should be pressed forward with intensity from beginning to end.

However, later the manual tells the commander that, "When complete success cannot be attained in a single operation, the campaign should be separated into phases that allow the attacker to regain the advantage before continuing."¹⁴ Strictly interpreted, this passage suggests phases of a campaign would be separated due to culmination at certain times since it says the commander must "regain the advantage," implying that initiative had been lost. But the prudent commander would phase his campaign so the initiative was never lost and the attacker could "maintain the advantage before continuing." While such a view may seem pedantic, it serves to illustrate the ambiguous guidance contained in the doctrine. Nowhere in FM 100-5 is the term operational pause used. Only in FM 100-6, as indicated previously, is there a reference to any kind of "pause" in designing campaign plans. That passage again fails to point out any relationship between the conduct of a pause and culmination. This discrepancy between FMs 100-5 and 100-6 points out the lack of clarity and continuity that exists within a single service component's doctrine. This situation becomes more exasperating when we look at the continuity of doctrine between different service components.

In conclusion, US Army doctrine clearly recognizes the concept of culmination and the requirement for

sequencing or phasing operations within the overall design of a campaign but it falls short in describing the interrelationships between these concepts. Only a fleeting reference is made to the concept of pausing as a technique for designing successful campaign plans.

US Marine Corps doctrine, as contained in FMFM 1 and FMFM 1-1, is very similar to Army doctrine. Here, the concept of culmination is discussed in some detail but only as it relates to the relationship between the offense and defense.¹⁷ Additionally, FMFM 1-1 recognizes the requirement for sequencing operations in campaign design but also falls short in clarifying the interrelationships between sequencing and culmination.¹⁸ However, FMFM 1-1 does use the term "operational pause" in a short vignette on GEN Eisenhower's campaign in Europe. It refers to an operational pause at the Rhine River, where sequential phases of the campaign were each followed by a logistical buildup prior to continuing offensive operations.¹⁹ However, the term operational pause is used here almost interchangeably with the process of logistical culmination (still, it is the only direct use of the term "operational pause" I found in any doctrinal manual). Thus, the term remains at most vague and largely undefined.

US Air Force doctrine is even more vague on the concepts of culmination, sequencing campaign plans, and pauses. First of all, Air Force Manual 1-1 does not discuss the concept of culmination at all. Under the principle of war "Timing and Tempo," AFM 1-1 states, "Timing and tempo is the principle of executing military operations at a point in time and at a rate which optimizes the use of friendly forces and which inhibits or denies the effectiveness of enemy forces."²⁰ Although somewhat vague, this principle seems to imply that air operations should be sequenced in the campaign's design in order to maximize their effectiveness. Although not official Air Force doctrine, a leading air power theoretician, John Warden states that war efforts come in surges, and the air forces must be capable of exploiting the opportunities presented by lulls in the enemy's offensive or defensive surges.²¹ Here again, we see no explicit doctrine on culmination or pauses and only an implicit reference to sequencing operations.

According to naval experts, the US Navy doctrinal concept is embodied in The Maritime Strategy written by Admiral James D. Watkins.²² The Maritime Strategy essentially provides the reader with the Navy's view of how naval operations fit into the United States' national military strategy. In doing so, The Maritime Strategy serves to define the Navy's purpose rather than describe

how they intend to fight. Consequently, it gives us little insight into the Navy's concept of warfare at the operational level. The manual does however tell us that, "the Maritime Strategy is designed to support the campaigns in the ground theaters of operations both directly and indirectly."²³ The Military Strategy does not contain any operational concepts such as campaign design, culmination, or pauses in operations. According to the naval experts I spoke with, the US Navy has no manual that does so.²⁴

Joint doctrine, as espoused in the new JCS Pub-series, is the newest facet of American military doctrine. While these manuals are relatively new and some still only in draft, none appear to come to grips with the concept of culmination or operational pauses. Neither JCS Pub 1-02, Department of Defense Dictionary of Military and Associated Terms, or JCS Pub 3-0, Doctrine for Unified and Joint Operations, contain a definition of culmination or operational pauses. Both, however, reflect the Army's and USMC's requirement for sequencing events at the operational level of war to achieve strategic or operational objectives.²⁵ But neither contains guidance to the operational commander on how this sequencing should take place.

Given this review of doctrinal publications, what conclusions can we draw? First of all, almost all the

Armed Services recognize the operational requirement of sequencing operations to achieve strategic or operational objectives. However, none appear to provide the operational commander with any concrete guidance on how or under what circumstances these sequences should be structured. Secondly, the concept of culmination appears to be relatively well understood only in land warfare (it is all but completely absent from maritime and aerospace doctrine) but its interrelationship with sequencing operations is vague at best. Given that the term "operational pause" fails to exist in our documented military lexicon, we must first determine if a need exists for one.

Clearly, the concept of culmination is well grounded in military theory and military history is replete with examples of operations which resulted in a force culminating.²⁶ Additionally, US military doctrine recognizes the need for designing campaigns so that the effects of culmination or loss of operational initiative are minimized.²⁷ Unfortunately, our doctrine fails to provide the operational commander with any techniques to accomplish this. My own experience with units in the field and after spending more than one and a half years at the Command and General Staff College indicates that the term "operational pause" has entered our professional lexicon. But no one seems able to reference it and few

agree on its precise definition. The concept of an operational pause, if properly defined, I propose, will provide the commander with a means for avoiding culmination, at least from a theoretical perspective. Thus, we have arrived at the time for defining the operational pause.

Recognizing the inherent cyclic or spasmodic nature of modern warfare and the requirement for sequencing operations in campaign design, an operational pause must occur prior to culmination and ensure the retention of operational initiative. Given these parameters, my definition follows:

OPERATIONAL PAUSE: A conscious decision by the operational commander to alter the nature of major combat operations in order to retain the operational initiative and preclude the consequences of culmination.

To arrive at this definition I determined that the primary difference between culmination and pausing lay in their purpose. Essentially, culmination has no purpose other than to describe the state of relational combat power an attacking force has to the defending enemy. The operational pause, if it is to have any utility to the commander, must have a purpose, and in this case that is to give the commander a tool with which he can avoid the consequences of culmination. The overriding purpose of the pause is to reorganize and/or regenerate that component of the force approaching culmination without

losing the overall initiative. Before proceeding with a look at historical examples of such actions, let us first differentiate pauses that might occur at the other levels of war.

Bearing in mind the purpose of a pause at the operational level, it is reasonable to assume that a pause at the strategic level would occur for some higher or political purpose. Therefore, a strategic pause might take place so that a political solution to the conflict could be pursued, such as a cease-fire prior to conclusion of an armistice. Pauses at the tactical level would occur during engagements or battles. Their purpose would be limited in scope (time, space, and mass) and not directly linked to the ultimate aim of the major operation or campaign. For example, a unit may pause after breaking through an enemy defensive line to pass a pursuit force through the gap created in the attack. The operational pause, on the other hand, will be directly linked to the overall design of the major operation or campaign. Its scope (time, space, and mass) is much broader. Finally, due to the nature of modern campaigns, an operational pause will normally have joint warfare implications.

Armed with this proposed definition of operational pauses, let us turn to some historical examples to see how and why pauses took place in past campaigns. From

these examples, I will evaluate the overall efficacy of the concept of operational pauses.

Part III: CASE STUDIES

Since the operational level of war serves to span the gap between the strategic and tactical levels, I will look at both an example of an operational pause at the higher end of the operational spectrum (an operational-strategic) and one at the lower end (an operational-tactical). Additionally, given the US Army's current emphasis on contingency force planning, I will look at the use of an operational pause in a contingency operation.

AEF PLAN FOR THE INVASION OF THE EUROPEAN CONTINENT

The plans for the Allied invasion of the European Continent, which resulted in the execution of Operation OVERLORD, provide an excellent example of campaign planning at the upper end of the operational level of war. As a result of the American-British Conversations (ABC-1), January through March 1941, the participants determined an overall sequence of actions for the defeat of Germany. In essence, this consisted of four separate yet interrelated major operations:

- 1) Conduct of naval operations to secure sea lines of communications between US & UK.
- 2) A buildup of US (and UK) ground forces in the UK for eventual offensive operations on the continent of Europe.
- 3) The buildup and employment of US & UK air forces in England to assume immediate operations against Germany to enforce the economic blockade and reduce the Axis military strength before land operations take place.
- 4) The conduct of amphibious landings on the continent in sufficient force to bring about the defeat of German forces in Europe. This was Operation OVERLORD.²⁸

While some may contend that these four major operations were really separate campaigns with their own strategic objectives (therefore, they might be thought of as taking place at the strategic level of war rather than the operational), I contend that they are really major operations, linked together to make up the overall campaign plan for the invasion of the continent.²⁹ Rather than get bogged down in the details of each of these major operations, let us step back and view them as interrelated operations as a whole to see where the concepts of culmination, pausing, and sequencing impacted on the campaign.

Given that the strategic initiative passed to the Allies in January 1943, we can view the elements of this campaign as generally offensive actions.³⁰ Examining the campaign from a joint perspective, we see two service

components initially conducting major operations against the enemy while the third paused and prepared for operations at a later time. The naval actions in the campaign became known as the Battle of the Atlantic. From early 1942 through May 1943, the Allied navies assumed large scale offensive operations to neutralize the German U-Boat threat to Allied shipping efforts.³¹ In execution of this operation, the Allied Air Forces assisted the Navy by making German U-Boat building facilities their highest priority target.³² Success of this operation allowed the Allies, particularly the US, to ship sufficient supplies and men to England to build up the base of operations necessary for the eventual invasion.

Simultaneously, the Allied Air Forces (AAF) were building up their strength and assuming a combined air offensive to reduce the German military and industrial war potential (Operation POINTBLANK). As mentioned above, the AAF assisted naval operations by striking U-Boat facilities. As time for the cross-channel attack approached, air operations focused on disrupting the transportation networks west of Paris in order to impede the movement of German forces into the landing areas once the assaults took place.³³ The ultimate purpose of this sequence of the campaign was to establish conditions

conducive for execution of a land campaign on the continent of Europe.³⁴

Additionally, while the ground forces continued to build up their forces in England, the supreme commander was able to conduct a large scale deception plan, Operation FORTITUDE. The purpose of FORTITUDE was to deceive the Germans as to when and where the actual invasion of the continent was to take place. In doing so, it contributed greatly to the overall success of the campaign.

Throughout the conduct of these naval and air operations, the ground forces were primarily organizing, planning, and training in preparation for offensive operations that were to occur on 6 June 1944. In essence then, the ground forces were pausing while the majority of combat operations took place at sea in the Atlantic and in the skies over Germany.

In the words of GEN Eisenhower:

While awaiting the moment of feasible execution of Overlord the Allies adopted various air, ground, and sea programs designed to seize and hold the initiative, weaken the enemy, assist our Allies, improve our own strategic, logistic, and psychological position, and to bring about a military situation that would enhance our chances of a complete victory once the full-scale effort [Overlord] could be launched.³⁵

In order to appreciate the utility of this pause in operations by the land forces, let us look at it in terms

of the potential for culmination had it not occurred. Had the Allies decided to undertake an earlier invasion of the European Continent, say in 1942 or 1943 (Operations SLEDGEHAMMER and ROUNDUP³⁶), the combination of naval and air superiority would not have been achieved yet. Both of these conditions were deemed necessary for successful execution of OVERLORD.³⁷ Therefore, an early invasion may have found the ground forces without the necessary naval supremacy and air cover to conduct ground operations without reaching their culminating point prior to completing successfully the objectives of the campaign (the defeat of Germany).

In addition to a pause by the ground forces prior to their actual introduction on the continent, Operation OVERLORD anticipated two more pauses by the ground forces once they landed on the beaches. The first was to occur approximately D+50, once an initial lodgement area was established (an area from the beaches to the Loire and Seine Rivers). The purpose of this pause was to expand the facilities for air operations on the continent, establishing 27 airfields capable of operating 62 squadrons, and to reorganize and consolidate the ground forces for future operations. The second pause would take place once Paris and the Seine ports were captured. This pause was to last up to three months while the enemy was cleared out of the whole of France south of Loire and

Dijon.³⁸ While not specifically stated in the plan, it is reasonable to assume that the purpose for these pauses was to avoid having the ground forces overextend themselves and thus be susceptible to a German counterattack. In other words, they wanted to avoid the consequences of culmination. It is equally reasonable to assume that during each of these pauses, the Allies would have maintained the overall initiative by conducting limited ground combat action and large scale air interdiction operations to keep the German forces from decisively counterattacking.

Looking at this campaign in relation to our definition of an operational pause, the Allies retained the initiative by conducting naval and air operations while the ground forces prepared for future operations. The naval and air operations assisted in the sequencing of operations by establishing conditions for the execution of the land operations. Having looked at an example at the upper end of the operational level, let us now turn to an operation in Italy for an example at the lower end.

OPERATIONS STRANGLE AND DIADEM IN ITALY, 1944

The spring of 1944, found the Allies in Italy facing formidable German defenses along the Gustav Line south of Rome. These positions occupied dominating terrain

running from the town of Monte Cairo through Monte Cassino to Monte Majo, along the west banks of the rivers Gari and Rapido, and guarded the entrance to the Liri Valley, the Allies' gateway to Rome.³⁹ After the Allies' third attempt to breakthrough the Gustav Line failed in February 1944, the Allies' ground offensive potential was exhausted.⁴⁰

While his ground forces seemed to have reached their culminating point, the Allied commander, GEN Alexander, maintained the initiative and avoided culmination of the overall campaign effort by launching Operation STRANGLE. On 19 March, the Mediterranean Allied Tactical Air Force began Operation STRANGLE, a large scale interdiction bombing effort directed against the German rail, road, and sea lines of communication from the Pisa-Rimini Line to the southern battlefield along the Gustav Line. The operation had two basic purposes. First, it prevented the Germans from reinforcing their forward units in sufficient strength to assume offensive operations. Second, it served as the preparation phase for a ground offensive scheduled for 11 May (Operation DIADEM) that eventually broke the Gustav Line.⁴¹ As a result of STRANGLE, practically all rail lines running through Rome to the southern front had been cut, rail traffic was generally unable to approach within 125 miles north of Rome, and road traffic was reduced to night operations.

providing the front line formations with only a fraction of their required supplies.⁴² While GEN Alexander shifted his main effort to the air forces in an interdiction operation, the land forces paused (almost two months) to reorganize and resupply before launching Operation DIADEM, the resumption of the land offensive. Thus, the land forces conducted an operational pause while the air forces continued offensive operations. Additionally, GEN Alexander was able to execute an elaborate deception, Operation NUNTON, during this interlude to confuse the Germans as to where Operation DIADEM would take place.

This operation provides an excellent example of how an operational commander can pause with one of his service components, in this case the land forces, while maintaining the initiative by shifting his main effort to another component like the air forces. It shows that even while one component may reach a culminating point, the overall campaign need not do the same. By using his joint commands wisely, GEN Alexander was able to prevent his campaign from culminating.

OPERATIONS DESERT SHIELD AND DESERT STORM

The recently concluded US Armed Forces operations in Southwest Asia provide us with an excellent example of a contemporary campaign. This campaign merits our study

since it was truly a joint effort prosecuted with our current doctrine and force structure.⁴³

The US response to Iraq's invasion and occupation of Kuwait on 2 August 1990, was immediate. Within 72 hours, US combat forces from the 82nd Abn Div, USAF combat aircraft, and USN surface combatants began deploying to the theater of operations under the operational control of the US Central Command (CENTCOM). This buildup of combat forces, Operation DESERT SHIELD, lasted another four and a half months, with the US deploying more than fifty percent of its total armed forces to the theater. On 17 January 1991, combat operations began, Operation DESERT STORM, with the execution of massive offensive air operations.

The combat operations of DESERT STORM consisted of essentially two phases: an air offensive phase and a decisive ground combat phase. The air phase of the war, which itself lasted approximately 38 days, had as its objectives the establishment of air superiority, the disruption of the Iraqi military's command and control structure, isolation of the Iraqi troops occupying Kuwait from their supply bases in Iraq, and the overall degradation of the Iraqi Army's ability to conduct combat operations. When ground combat actions began, it was apparent that all four objectives of the air operations were successfully accomplished.

While the air operations were underway, the ground forces paused. Combat and combat service support units of the Army and Marine Corps continued to deploy into the theater from the Continental United States and Europe. The effect of this pause and continued deployment was to build up sufficient ground combat power in the theater to execute a decisive land operation to defeat the Iraqi Army and liberate the country of Kuwait. So decisive was the buildup and execution by the ground combat forces that the Iraqi Army in Kuwait was defeated in less than one hundred hours of ground combat action.

Looking at this campaign in relation to our definition of an operational pause, we see that US Central Command seized and retained the operational initiative by executing a massive air operation while the ground combat forces prepared for a future land offensive. In essence, the air operations kept the Iraqi Army and Air Force off balance and on the defensive while the US Army and Marine Corps deployed their forces and set favorable conditions for land combat. These conditions included the buildup of combat power, establishment of logistical bases of operations and deception operations to enhance the element of surprise once ground combat began.

Because of the careful preparation and sequencing of actions that took place, the US forces never reached a

culminating point during the campaign. At no time, perhaps other than the first few weeks in August 1990, did the Iraqi military possess the initiative. The combination of the air forces seizing and maintaining the initiative while the land forces paused and built up an overwhelming superiority, created conditions for a highly successful campaign. In order to appreciate more fully the concept of an operational pause, let us consider what might have happened if the Iraqi Army fought more resolutely and the CENTCOM forces approached a culminating point during the prosecution of the ground operations.

Upon occupying Kuwait, the Iraqi Army prepared strong, fortified defensive positions. One may surmise that their intent was in keeping with Clausewitz's dictum that the defense is the stronger form of warfare. Thus, they could await the CENTCOM offensive and attrit these forces until they culminated. Then they could decisively counterattack with their operational reserve, the Republican Guard Forces, to complete the destruction of the attacking forces. As the CENTCOM forces approached their culminating point, the CENTCOM commander would have two basic options. First, he could press on with his offensive in hopes of reaching a favorable conclusion before actually reaching culmination. This option assumes a great deal of risk for as the forces press on,

they may become overextended and lose their relational combat power advantage over the enemy. If the Iraqi commander were able to recognize his advantage, he might be able to execute his flashing sword of vengeance, counterattacking and defeating the CENTCOM forces. On the other hand, as the CENTCOM forces approached culmination, their commander could execute an operational pause. He could place the ground combat forces in a defensive posture, allowing them to consolidate and reorganize. Simultaneously, he could retain the initiative through the execution of another air interdiction operation. Critical here is the commander's ability to recognize when his ground forces are approaching a relative combat power disadvantage with respect to their enemy. This cycle of ground and air operations could then be repeated as required until the enemy was finally driven from Kuwait. This more cautious approach to campaign design assumes much less risk but has the disadvantage of a potential for more prolonged combat operations.

In summary, Operations DESERT SHIELD and DESERT STORM provide us an excellent example of contemporary campaign design. Initially, the commander paused with his land forces while assuming the initiative with air power. Further significance is derived by considering the hypothetical situation where the ground forces approach culmination while conducting combat operations.

Given these case studies, let us see what conclusions might be drawn from the relationship of culmination, pausing and sequencing.

CASE STUDY SYNTHESIS

From these three case studies we can draw some tentative conclusions as to how operational pauses might be best sequenced in order to minimize the effects of culmination. Looking at the AEF invasion of the European Continent and CENTCOM's campaign in Southwest Asia, we see that land forces may pause while naval and/or air forces achieve superiority in their respective environments and establish conditions conducive for ground combat operations. During this pause, the ground force does not remain inactive. Rather, they conduct deployment, consolidation, or reorganization efforts in preparation of the pending ground combat. While some may argue that rather than pausing, the land forces were simply conducting deployment, it is important to remember the ultimate purpose of the deployment. It was done so that sufficient forces could be in place prior to initiation (or possibly resumption) of offensive land operations. Later, I will show how this is directly related to some of the Operational Operating Systems. In this context it fits with our previously derived definition of an operational pause.

In the second case, operations on the Italian peninsula, and the hypothetical case examined in Operation DESERT STORM, we see that the operational commander can shift his effort from one service component to another when the former approached its culminating point. Thus, he was able to retain the initiative in the campaign while his land force operationally paused by having the air forces assume enlarged offensive actions to prevent the enemy from achieving a relative advantage in combat power. In this way, the overall campaign effort avoids culmination. Due to the interdependence of air and ground operations, it may be reasonable to conclude that this effect is limited to air and ground components at this lower level of the operational level of war. Only extraordinary circumstances, such as geography, would allow a naval component to have achieved the same effect as the air forces did in Operation STRANGLE.

Overall, we see that an operational commander can retain the initiative in the conduct of his campaign by properly sequencing his main effort between service components. While one component pauses, the other(s) can maintain sufficient pressure on the enemy force to prevent an overall shift in relative combat power, in effect avoid culminating the entire campaign. Having drawn these conclusions, let us now look at how these

pauses contribute to the blueprint of the operation by examining their impact on some of the Operational Operating Systems.

ANALYSIS OF THE CONTRIBUTION OF AN OPERATIONAL PAUSE
TO THE OPERATIONAL OPERATING SYSTEMS

In considering the contribution of the operational pause in each case study to the blueprint of the operational battlefield, I will consider it in relation to the Operational Operating Systems of Maneuver and Mobility, Firepower, and Protection. This will provide us with a framework for evaluating the utility of each of the pauses. While a detailed description of each operating system can be found in TRADOC Pam 11-9, I will summarize each below.

1. Operational Maneuver and Mobility:⁴⁴ The disposition of forces to create a decisive impact on the conduct of the campaign or major operation by either securing the operational position of advantage before the battle is joined or exploiting tactical success to achieve operational or strategic success. This includes:

- Deployment of forces into the area of operations from outside the AOR.
- Redeployment or movement of forces within the AOR.
- Control of land, sea, & air areas to gain an advantage over the opponent.
- Delaying, channeling, or stopping movement of enemy operational formations.

2. Operational Fires:⁴⁵ The application of

firepower to achieve a decisive impact on the conduct of the campaign or major operation. This includes:

- Facilitate operational maneuver to operational depth by creating exploitable gaps in the tactical defense.

- Isolate the battlefield by interdiction of uncommitted enemy forces and sustaining efforts.

- Destruction of critical functions and facilities having operational significance.

3. Operational Protection:⁴⁶ The conservation of the fighting potential of a force so that it is applied at the decisive place and time. This includes:

- Operational air defense

- Deception

- OPSEC

- Many other functions included in the other OOSs.

The Allied Expeditionary Force's invasion of the European continent provides several examples of how an operational pause may contribute to one or more of the Operational Operating Systems. Looking at the system of Operational Maneuver and Mobility, the operational pause conducted by the ground forces contributed in two major ways. First, by pausing with the ground forces until June 1944, the Supreme Commander was able to deploy adequate numbers of ground forces into the theater of operations to reduce the risk of culmination. Had he not paused in this manner and committed the ground forces sooner, in smaller numbers, he would have significantly

increased his risk of reaching a culminating point prior to achieving his campaign objectives. Culmination in this instance may have had catastrophic consequences such as the landing force being defeated in detail by superior German forces and forced to withdraw from the continent. Second, while this pause took place by the ground forces, the Navy and Air Force were free to concentrate their efforts to achieve superiority in their respective environments. Since air and sea superiority were considered prerequisites for launching Operation OVERLORD, achieving them gave the Allies a tremendous advantage over the defending Germans. The combined effects of these two benefits derived from the ground force's operational pause greatly contributed to the invasion's ultimate success.

In the area of Operational Fires, the operational pause contributed in two separate but very interrelated ways. As mentioned above, the Allied Air Forces were able to achieve air superiority over the Continent. Once they achieved this condition, they were able to redirect their efforts to an interdiction operation. This effort was further enhanced by the operational pause being conducted by land forces since the air forces did not have to divert any of their effort to close support of these forces. First, these interdiction bombings prevented the Germans from moving operational formations,

such as their panzer groups, into a position where they might have directly opposed the amphibious landings in force. In essence, they isolated the battlefield by interdicting uncommitted enemy operational formations.

The second effect was the damage this interdiction effort had on the infrastructure, particularly to the bridges and railroads, of the area outside the landing areas. This effort greatly degraded the transportation system in France and had an operational significance as described above.

In the last area, Operational Protection, the pause conserved the fighting strength of the force so that it could be applied at the decisive time and place. Additionally, the operational pause gave SHAEF more time in which to develop the deception plan, Operation FORTITUDE. This deception greatly increased the Allies' chances for a decisive campaign on the European Continent.

In the Italian campaign, the operational pause associated with Operations STRANGLE and DIADEM contributed to the Operational Operating Systems in much the same way. In the area of Operational Maneuver and Mobility, the pause taken by the ground forces made its most significant contribution by giving GEN Alexander the time to reposition and reconstitute his forces prior to the upcoming ground offensive. Additionally, the pause

freed the Allied Air Forces in Italy from close support of ground forces so that they could concentrate on continuing to maintain air superiority and execution of Operation STRANGLE. It was through Operation STRANGLE that GEN Alexander was able to retain the initiative, keep the Germans from benefiting from the Allies' pause on the ground, and avoid overall culmination of the campaign.

Operation STRANGLE made itself most felt in the Operational Operating System of Operational Fires. Through the intense interdiction of the German lines of support north of the Gustav Line, the Allied Air Forces significantly degraded the Germans sustainment efforts and prevented them from achieving a relative combat power advantage over the pausing Allied ground forces. Additionally, this effort damaged or destroyed several key German facilities having operational significance such as the 10th Army headquarters and the Army Group C headquarters just prior to execution of the ground offensive.

In the area of Operational Protection, the pause conducted by the ground forces allowed GEN Alexander to conserve his land force's fighting potential before they found themselves with less relative combat power than the defending Germans. To retain the initiative, as stated above, he ensured this by shifting his main effort to the

air forces. In addition, the pause gave the Allies time to implement their deception plan, Operation NUNTON, thus further increasing the likelihood that the new ground offensive would succeed.

In many ways the operational pause during Operations DESERT SHIELD and DESERT STORM parallel those of the AEF plans to invade the European Continent. In the area of Operational Mobility and Maneuver, the operational pause by the ground forces prior to combat operations ensured the CENTCOM commander would have sufficient forces deployed in the theater to achieve a decisive ground operation once it began. Executing ground combat operations prior to the complete deployment would have entailed greater risk and possible culmination before accomplishment of the campaign's objectives.

Additionally, while this pause took place, the air forces were free to concentrate their efforts on achieving air superiority and attriting the Iraqi maneuver forces' combat potential, thus establishing conditions conducive for the land phase of the campaign.

In the area of Operational Fires, the pause by the ground forces freed the air forces from conducting close air support, allowing them to concentrate their firepower to isolate the Iraqi forces in Kuwait and to destroy the Iraqi command and control structure. Both the isolation of the Iraqi forces from their sustainment bases in Iraq

and the destruction of their command and control apparatus had a profound impact in facilitating the ground phase of the campaign.

Lastly, in the area of Operational Protection, the pause enabled the CENTCOM commander to conserve the fighting strength of his ground combat forces so it could be applied at the decisive time and place. Additionally, the pause gave the commander more time to develop his deception plans and psychological operations, thus placing the Iraqi forces at a further disadvantage once the land phase of the campaign began.

In each of these case studies, the conduct of an operational pause made several contributions to these Operational Operating Systems. Because of these contributions, the concept of an operational pause in campaign design has some merit. Let us now make some final conclusions about how these pauses can be best sequenced in order to minimize the effects of culmination.

CONCLUSIONS

Modern warfare is a very dynamic and complicated undertaking. Many factors combine to prevent warfare from running its course steadily like the wound up clock Clausewitz refers to. A critical consideration in campaign design is the concept of culmination. If an

operational commander or campaign planner allows his force to culminate, he runs the risk of passing the relative combat power advantage over to the defending enemy, enabling that enemy to assume the offensive and perhaps defeat the force. Therefore, avoiding the effects of culmination should be a paramount concern to the operational planner. One method for avoiding these effects is to introduce an operational pause into the campaign's design. By conducting an operational pause, the commander makes a conscious decision to alter the nature of his major operation, retain the operational initiative, and preclude the consequences of culmination. From our brief look at the above historical examples, two types of operational pauses emerge. While both pauses took place on the part of the ground force contingent of the operation, they differed in when they took place in the course of the campaign.

As the Allied plans for the invasion of the European Continent show us, an operational pause may take place prior to the commitment of land forces in the campaign. Such a pause enables the other components of the joint force to concentrate on achieving superiority in their respective areas, the air forces in the air and naval forces at sea. Additionally, a pause at this point in the campaign allows the commander to establish the military conditions necessary for a successful campaign,

a critical component of campaign design. The operational pause assists establishing these conditions by contributing to the effectiveness of several of the Operational Operating Systems.

Operational Maneuver and Mobility is enhanced by allowing for a sufficient force to be introduced into the theater of operations prior to the commitment of ground forces. The pause allows the air component to focus on Operational Fires and prepare the battlefield through interdiction operations. Additionally, as the pause takes place, Operational Protection is enhanced by conserving the force's combat potential so that it can be applied later at the decisive place and time. Finally, the pause buys time so that the commander can effectively execute deception operations that may significantly enhance his probability of success. The operational pause that took place on the Italian peninsula shows us the case of a pause during ground campaign rather than prior to the commitment of ground forces.

The pause that took place from March to May 1944 in Italy avoided overall culmination of the campaign by shifting the effort from the ground forces to the air forces. Here, the commander used the operational pause by his ground forces to reorganize and resupply his ground forces thus ensuring that Operational Maneuver and Mobility and Operational Protection were enhanced. By

shifting his effort to the air forces in an interdiction operation (Operation STRANGLE), the commander retained the initiative and prevented the Germans from achieving a relative combat power advantage. In effect, he prevented his campaign from culminating.

Neither of these two methods appears to be better than the other. Instead, they indicate that the decision as to when to execute an operational pause is highly dependent on the circumstances that confront the commander and his campaign. The most difficult question to answer is whether or not the totality of a campaign's design should be centered around the parameters of an operational pause. While I do not suggest that an operational pause should be the paramount issue in campaign design, it is certainly an important factor which the campaign designer must consider.

Because this monograph has been purposely limited in its scope, it leaves many areas concerning the concept of operational pauses uninvestigated. Some of these areas which merit further research include the impact of Operational Logistics and Sustainment on the interrelationship between culmination and pausing, the practicality of the air component pausing, and operational pauses in other than mid- to high-intensity conflict.

Currently our service components and joint doctrine fail to go so far as to even define what an operational pause is, though the term has slipped into our doctrinal vernacular on operational art. All our doctrine currently tells the campaign designer is that his plan must avoid or at least take into account the concept of culmination. What I propose is that we institutionalize and define the concept the Operational Pause in order to give the campaign designers a tool by which they can accomplish the task we give them.

ENDNOTES

- 1 Clausewitz, Carl Von, On War, Trans. by Michael Howard and Peter Paret, Princeton, NJ: University of Princeton Press, 1976, p. 219.
- 2 Field Manual 100-5, Operations, Headquarters, Department of the Army, Washington, DC, May 1986, pp. 181 through 182. Additionally, the concept of culmination has been the subject of numerous articles in American professional military journals and the subject of more than ten monographs written by students at the Advanced Military Studies Program, USACGSC.
- 3 FM 100-5, p. 10.
- 4 Gribiling, Richard H., "Soviet Attack Tempo: The Linchpin in Soviet Maneuver Doctrine", SAMS Monograph, USACGSC, Ft. Leavenworth, KS, 9 Mar 88, p. 1.
- 5 Gribiling, p. 1.
- 6 JCS Publication 3-0 (Test Pub), Doctrine for Unified and Joint Operations, The Joint Chiefs of Staff, Washington, DC, January 1990, p. ix.
- 7 Clausewitz, p. 216.
- 8 Clausewitz, pp. 83 through 85.
- 9 Clausewitz, pp. 217 through 218.
- 10 FM 100-5, p. 181.
- 11 Clausewitz, p. 528.
- 12 FM 100-5, p. 32.
- 13 FM 100-5, p. 32.
- 14 Field Manual 100-6, Large Unit Operations (Coordinating Draft), USACGSC, Ft. Leavenworth, KS, 30 Sep 87, p. 3-3.
- 15 FM 100-5, p. 24.
- 16 FM 100-5, p. 110.
- 17 Fleet Marine Force Manual 1, Warfighting, Headquarters, United States Marine Corps, Washington, DC, 6 Mar 89, p. 26.

- 18 Fleet Marine Force Manual 1-1, Campaigning, Headquarters, United States Marine Corps, Washington, DC, 23 Jan 90, pp. 40 through 51.
- 19 FMFM 1-1, p. 46.
- 20 Air Force Manual 1-1, Basic Aerospace Doctrine of the States Air Force, Headquarters, United States Air Force, Washington, DC, 16 Mar 84, p. 2-8.
- 21 Warden, John A. III, The Air Campaign, National Defense University Press: Washington, DC, 1988, p. 126.
- 22 Watkins, James D., The Maritime Strategy. A copy of this document was provided to the author by the USN Liaison Section to the CGSC, Ft. Leavenworth, KS.
- 23 Watkins, p. B-3.
- 24 Author's interview with several member of the US Navy Liaison Section to the US Army Command and General Staff College conducted on 1 March 1991.
- 25 Joint Publication 1-02, Department of Defense Dictionary of Military and Associated Terms, The Joint Chiefs of Staff, Washington, DC, 1 Dec 89, p. 264, and JCS Pub 3-0, p. xiii and III-7.
- 26 This is my assessment. The concept of culmination originates primarily from the works of Clausewitz. Examples of operations which resulted in culmination can be found throughout the Western Front of WWI, e.g. the first battle of the Marne, and during WWII on the Eastern Front.
- 27 FM 100-5, p. 32.
- 28 Matloff, Maurice and Snell, Edwin M., Strategic Planning for Coalition Warfare, 1941 - 1942, Office of the Chief of Military History, Department of the Army, Washington, DC, 1953, pp. 32 and 43 through 45.
- 29 My basis for this contention is that the ultimate purpose for all these major operations was aimed directly at the defeat of the German Army on the European Continent. While their execution was directed by the Combined Chiefs of Staff (who operated at the strategic rather than operational level), their actual execution constitutes operational art because they established the military conditions for success, sequenced actions to

produce those conditions, and applied resources to accomplish that sequence of actions. Additionally, none of these major operations, by themselves, could have accomplished the strategic military goal of defeating the German Army. Therefore, when combined they constituted the overall campaign plan for defeating the German Army in Europe.

30 Matloff, Maurice, Strategic Planning for Coalition Warfare, 1943 - 1944, Office of the Chief of Military History, Washington, DC, 1959, p. 18.

31 The Second World War: Europe and the Mediterranean, Vol I, United States Military Academy Department of History, 1978, p. 416.

32 Harrison, Gordon A., Cross-Channel Attack, Office of the Chief of Military History, Washington, DC, 1951, pp. 63 through 64 and 83 through 86.

33 Harrison, p. 217.

34 Morgan, Frederick, Overture to Overlord, New York: Double Day & Company, p. 173.

35 Morgan, p. v.

36 Atlas of the Second World War, Ed. by Brigadier Peter Young, New York: Berkley Publishing Company, Mar 77, p. 226.

37 Matloff, p. 28.

38 Harrison, pp. 78 through 79.

39 Fisher, Ernest F., Cassino to the Alps, Center for Military History, Washington, DC, 1977, p. 16.

40 Fisher, p. 20.

41 Bingham, Price T., Ground Maneuver and Air Interdiction in the Operational Art, Air Force Press, Maxwell AFB, Alabama, Sep 89, p. 4.

42 Fisher, p. 20 through 21.

43 In developing my discussion of Operations DESERT SHIELD and DESERT STORM, I have relied primarily on notes I kept during our AMSP seminar discussions of the operations from August 1990 through March 1991. Source material for these discussions came from multiple

sources, primarily the Cable News Network and Kansas City Star newspaper articles.

44 TRADOC Pamphlet 11-9, Blueprint of the Battlefield, Headquarters, US Army Training and Doctrine Command, Ft. Monroe, VA, 27 Apr 90, p. 12.

45 TRADOC Pam 11-9, pp. 12 through 13.

46 TRADOC Pam 11-9, p. 13.

BIBLIOGRAPHY

BOOKS:

Bellamy, Chris. The Future of Land Warfare. NY: St. Martin's Press, 1987.

Bingham, Price T. Ground Maneuver and Air Interdiction in the Operational Art. Air Force Press, Maxwell AFB, Alabama, Sep 89.

Clausewitz, Carl Von. On War. Trans. by Michael Howard and Peter Paret. Princeton, NJ: University of Princeton Press, 1976.

Fisher, Ernest F. Cassino to the Alps. Center for Military History, Washington, DC, 1977.

Greenfield, Kent Roberts. Command Decisions. Office of the Chief of Military History, US Army, Washington DC: USGPO, 1960.

Harrison, Gordon A. Cross-Channel Attack. Office of the Chief of Military History, US Army, Washington DC: USGPO, 1951.

Hastings, Max, and Jenkins, Simon. The Battle for the Falklands. NY: W. W. Norton & Company, 1983.

Jomini, Henri A. The Art of War. Ed. by Brig. Gen. J. D. Hittle, from Roots of Strategy, Book 2. Harrisburg, PA: Stackpole Books, 1987.

Matloff, Maurice and Snell, Edwin M. Strategic Planning for Coalition Warfare, 1941 - 1942. Office of the Chief of Military History, Department of the Army, Washington, DC, 1953.

Matloff, Maurice. Strategic Planning for Coalition Warfare, 1943 - 1944. Office of the Chief of Military History, Washington, DC, 1959.

Morgan, Frederick. Overture to Overlord. New York: Double Day & Company.

The Second World War: Europe and the Mediterranean. Vol I. United States Military Academy Department of History, 1978.

Warden, John A. III. The Air Campaign. National Defense University Press: Washington, DC, 1988.

Young, Peter, Ed. Atlas of the Second World War.
New York: Berkley Publishing Company, March
1977.

FIELD MANUALS:

Air Force Manual 1-1. Basic Aerospace Doctrine of the States Air Force. Headquarters, United States Air Force, Washington, DC, 16 Mar 84.

Field Manual 100-5. Operations. Headquarters, Department of the Army, Washington, DC, May 1986.

Field Manual 100-6. Large Unit Operations (Coordinating Draft). USACGSC, Ft. Leavenworth, KS, 30 Sep 87.

Fleet Marine Force Manual 1. Warfighting. Headquarters, United States Marine Corps, Washington, DC, 6 Mar 89.

Fleet Marine Force Manual 1-1. Campaigning. Headquarters, United States Marine Corps, Washington, DC, 23 Jan 90.

JCS Publication 3-0 (Test Pub). Doctrine for Unified and Joint Operations. The Joint Chiefs of Staff, Washington, DC, January 1990.

Joint Publication 1-02. Department of Defense Dictionary of Military and Associated Terms. The Joint Chiefs of Staff, Washington, DC, 1 Dec 89.

TRADOC Pamphlet 11-9. Blueprint of the Battlefield. Headquarters, US Army Training and Doctrine Command, Ft. Monroe, VA, 27 Apr 90.

PERIODICALS:

Dees, Robert F. MAJ "Battle Rhythm." Military Review. April 1987.

UNPUBLISHED DOCUMENTS:

Benjamin, David J. "Prerequisite for Victory: The Discovery of the Culminating Point." SAMS Monograph, USCGSC, May 1986.

Cowan, David M. "The Utility of the Operational Pause in sequencing Battles to Achieve an Operational Advantage." SAMS Monograph, USCGSC, May 1987.

Gribiling, Richard H. "Soviet Attack Tempo: The Linchpin in Soviet Maneuver Doctrine." SAMS Monograph, USACGSC, Ft. Leavenworth, KS, 9 Mar 88.

Meisner, Bruce L. "The Culminating Point--A Viable Operational Concept or Some Theoretical Nonsense." SAMS Monograph, USCGSC, March 1986.